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Essential Pathology

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SECOND EDITION

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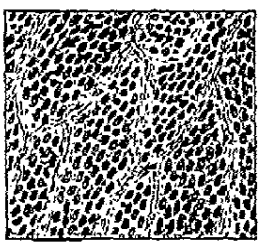
BRONCHOGENIC CARCINOMA

Small cell carcinoma (Oat cell carcinoma)

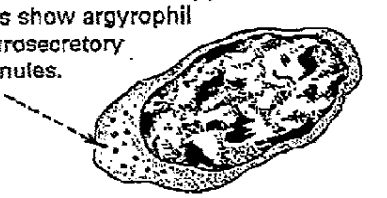
The cells are relatively uniform: in some cases they are said to resemble oat grains.



Almost no cytoplasm

Spindle-shaped dark nuclei; may appear to be rounded or oval. May be arranged in sheets, cords or small round aggregates.

On electron-microscopy, cells show argyrophil neurosecretory granules.



This is the type of lung tumour most commonly associated with endocrine syndromes, and the neurosecretory granules are an indication of this activity. Metastases to lymph nodes may be difficult to recognise initially on histological material because the cells resemble lymphocytes superficially. The growth is of a highly malignant type and widespread metastases occur early. It tends to affect a younger age group more than does the squamous variety. The primary growth may be quite small although numerous blood borne metastases are present.

Large cell anaplastic carcinoma

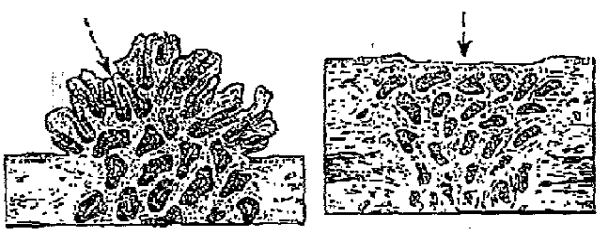
As the name suggests this tumour shows cells of all shapes and sizes without any distinctive characteristics. Mitoses are frequent and it is highly malignant.

These three foregoing varieties almost always affect bronchi at the hilum and are most common in males. The sex incidence was until recently 8 males to 1 female.

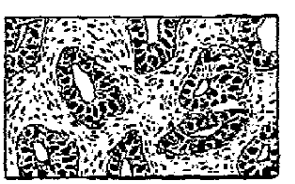
Adenocarcinoma

This form is relatively rare, and at least 50% arise in the peripheral bronchi. Another interesting feature is that there is no sex prevalence, the neoplasm occurring in males and females equally. The gross appearance varies as in all glandular carcinomas.

It may be papillary . . . or solid and scirrhous



Cells are cuboidal or tall columnar and mucus secreting



Despite the degree of differentiation, this is usually a highly malignant tumour.

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BRONCHOGENIC CARCINOMA

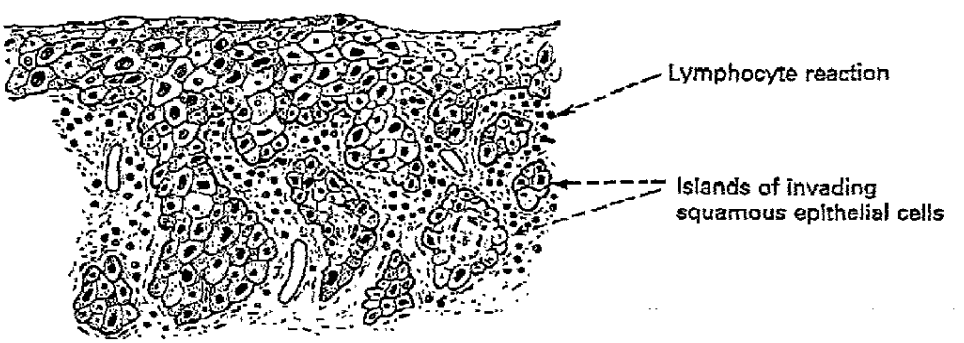
HISTOLOGICAL TYPES

Four main varieties are recognised:

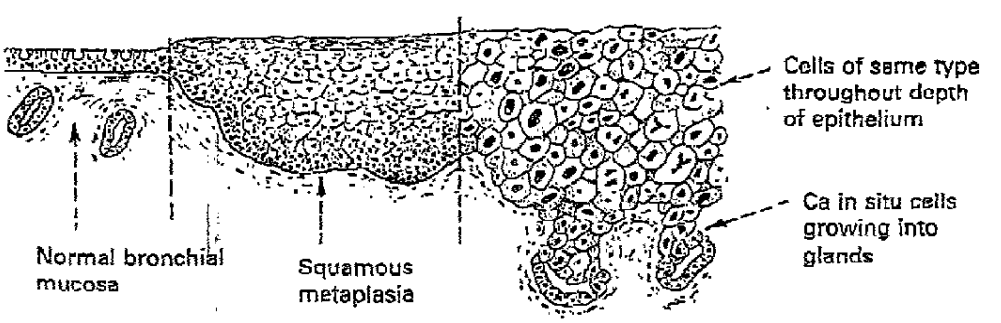
1. Squamous cell carcinoma
2. Small cell anaplastic carcinoma (oat cell)
3. Large cell anaplastic carcinoma
4. Adenocarcinoma

} These are responsible for 90% of all bronchogenic cancers, and squamous cell carcinoma is the most common of these three.

Squamous cell carcinoma
This shows the usual characteristics of squamous cell carcinoma, but keratinisation is not common.



At edge of growth and in unaffected bronchi, squamous metaplasia and Ca in situ are found.



Although this type of growth, like all squamous cell carcinomas, is relatively slow growing, it is associated with extensive destruction of local tissues, and the lung lesions due to bronchial obstruction are particularly apt to occur: a high percentage of patients are dead within 1 year.

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BRONCHOGENIC CARCINOMA

AETIOLOGY

1. Bronchial carcinoma has increased by 500% in the last 25 years.
2. Sex Incidence
   Previously 85% of cases occurred in males over the age of 45, with a sex incidence of 8 males to 1 female. Now the age in males is 30 and the male/female rate is 6 to 1. These facts apply to all histological types of carcinoma except adenocarcinoma which affects males and females equally.
3. Tobacco
   The increase in incidence of bronchial carcinoma is directly related to the number of cigarettes smoked per day. This is most clearly seen in females. The exact carcinogen is unknown but a component of cigarette tar is implicated.
4. Atmospheric Pollution
   Industrial vapours and combusion of oil and petrol are important factors. Bronchial carcinoma is marginally more frequent in towns than in rural areas.
5. Weather
   The incidence is higher in cities with a high rainfall. Noxious agents are concentrated in moisture droplets and in conditions of high humidity remain undispersed.
6. Industrial Causes
   These are related to high atmospheric pollution
   (a) Chromate industry; (b) nickel refining; (c) asbestos manufacture; (d) haematite mining and (e) uranium, cobalt mining. Radioactivity is important.

PROGNOSIS

1. Bronchial carcinoma causes 10% of all deaths between the ages of 45 and 64.
2. Only 20% are suitable for surgery, usually squamous cell growths. The 5 year survival rate is 25%, i.e. 5% of all cases survive 5 years. Cytological methods, e.g. brush biopsies may yield earlier diagnosis.
3. Prognosis is poorest with oat cell and anaplastic carcinoma.

SECONDARY LUNG TUMOURS

These are the commonest form of pulmonary malignancy due to the whole blood circulating through the lungs. In addition, lymphatic spread may occur from breast carcinoma and abdominal malignancies.

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